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Oil Discovery in Ghana

A Blessing or a Curse

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Oil discovery has been of economic benefit to most developed countries while it has brought curse to the economies of most developing countries. The difference, upon investigation in this thesis, was of the managerial principles adopted among these two categories of countries. The generally acclaimed managerial principles of oil wealth are investigated in these crucial areas: Macroeconomic, which was made up of fiscal management and exchange rate policy; second, ensuring fairness and equity in oil wealth distribution, that is dealing with inequalities that occur mostly in oil-rich nations; third, Dealing with multinational oil companies, which comprises of the type of auction design and bidder preference; fourth, Oil management laws, which also include setting account for oil revenue, transparency, accountability and, oversight and control of oil revenue.

When these key principles are ignored, oil-rich country could suffer from environmental destructions, Dutch disease syndrome (shrinking other sectors of the economy), poverty, inequalities and unemployment, ineffective rule of law, attitude of rent-seeking, greater risk of conflicts and war, and nondemocratic state.

In the context of Ghana's current economic status, certain key managerial principles are drawn from the generally accepted principles and also the experience of other resource-rich countries. There are two major macroeconomic challenges that Ghana faces. First, is how to deal with the characteristic frequently changing oil price and the volatility of its output and Second, is its recurrent fiscal imbalance. The former could be resolved through manipulating the oil revenue share to be deposited into the national budget and making investment with the remainder overseas. By establishing a permanent fund, where only the interest on that fund is transferred to the budget is necessary to deal with the latter problem.

Ghana also needs structural transformation. Agricultural productivity growth and diversification of the economy away from oil production. It means the country's agricultural sector which accounts for greater percentage of its workforce should be strengthened and value-addition to the primary products which means heavy industrialization. However, Ghana should invest massively on public and merit goods which in turn will promote growth in the sectors mentioned above. The famous Dutch disease is of no essence if oil revenue is invested in public goods rather than consumption.

Good governance, transparency and accountability are of greater essence to Ghana in the proper management of its oil wealth. Drawing from Ghana's experience with the mining industry, there was lack of transparency and favourable laws that served as incentives for rent-seeking behavior. Laws that mandate independent bodies to oversee the management of the oil rents and the public disclosure of information concerning all oil dealings among the oil companies and the government are paramount to the effective management of the oil rent. Ghana should also make its compliance to the EITI mandatory to help solve the transparency problem that has bedeviled its mining industry.

Lastly, environmental concerns are of equal greater importance to Ghana's economic growth. There should be environmental laws that would ensure that multinational oil companies comply with environmental regulations to prevent a major disaster to the environment.

Keywords

Natural resource, oil revenue, economic development

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1 Introduction

Ghana started the exploration and production of oil and gas in 1896. However, it was known that Signal & Amaco Group made the first commercial discovery in 1970. This was at Saltpond in the central part of Ghana. The recoverable oil reserves were estimated at 4.9 million barrels. The production at this field began in 1978 by Agripetco, producing a total of 4,800 barrels each day (modernghanaonline 2009). In 1985, when production decreased to 580 barrels per day, the field was eventually closed down. Production however resumed in year 2000 and now produces about 600 barrels per day (Ghana National Petroleum Corporation 2006). Active research began in the 1980's by Ghana National Petroleum Corporation (GNPC). The Ghana government, with the aim of owning the reserves when discovery were made, decided to fund the exploration. This approach by the government towards the exploration was not successful due to the high cost associated with the exploration.

In 2001, the government of Ghana decided to move away from the nation-centric approach to all inclusive approach which served as an incentive to participation of private bodies. The change in taxes and other levies on oil production during the second quarter of the year 2003 led to the involvement of several major international oil and gas firms like Tullow, Kosmos and Gasop. With the involvement of private interest groups alongside a re-equipped GNPC, new discoveries of oil and gas in commercial quantities were made by both Kosmos and Tullow in what is known as the Jubilee field. This field has a reserves of about 800 million barrels of light crude oil with an upside potential of about 3 billion barrels (Commerce Ghana 2010). Indeed other discoveries have since been made and are yet to be developed.

Ever since oil was discovered in large quantities, there have been several suggestions on how the government should use the oil and gas resources of the country for the greater economic benefits of its citizens. Many stakeholders including politicians, journalists and economic experts have added their opinion on how the oil rents must be utilized to achieve greater economic prosperity for the country. It is in this light the subject "oil discovery: a blessing or a curse" has been an important and major debating point across the length and breadth of the country.

Oil discovery brings enormous excitement and anxiety to the citizens of those nations with the hope of greater economic transformation. The oil discovery can affect Ghana's economy either positively or negatively. This depends on the managerial principles and models that would be deployed in the exploration process and the management of the oil rents for the total benefit of each individual in the society. It is therefore necessary to put in place conducive managerial settings to ensure that the positive effects are maximized whereas the negative effects are minimized.

This much is certain: large oil revenue (compared to the size of the economy) will have a significant impact. New oil rents flows, or a significant increase in existing ones, will transform an economy for better or worse. Usually expectations are high. Disappointment often follows. Certainly, oil revenue has the potential to make an economy better-off but it also produces large risks that the potential benefits will not fully be realized or indeed, that it may make an economy worse-off than before (Najman, Pomfret & Raballand 2007).

This thesis discusses the possibilities of oil as a blessing or a curse to Ghana's economy. To understand the subject matter, this thesis outlines the positive impact that is made up primarily of macro-economic effects and micro-economic effects that Ghana could experience due to the oil find. In addition, the thesis also discusses the negative impact that may occur if the oil resource is mismanaged. Furthermore, Ghana's experience of management with the mining industry is discussed. Best practices for realizing a sustainable economic growth and development as a result of the oil boom are the subject of the next chapter. Again, comparisons of practices in a developed country that has performed well and in a developing country that has done badly in the oil windfall managements are set as lessons for Ghana. Finally, recommendations based on Ghana's current economic situation are outlined.

2 Theoretical framework

The "paradox of plenty" is what most social scientists use to describe the "resource curse" that befalls many resource-rich economies. Nations with large deposit of natural resources, such as oil and gas most often perform worse with regards to economic development and good governance than do countries with fewer resources (Sachs &

Warner 1995:69). Strangely, despite enormous wealth and opportunities that is associated with oil discovery, such endowments many times impede rather than further balanced and sustainable development. In country after country, natural resource extraction has helped raised living standard while failing to produce self-sustaining growth (Sachs & Warner 1995:69). In addition to these growth failures, there is the high possibility of weak democratic development (Ross 2001), corruption (Sala-i-Martin & Subramanian 2003), and even civil war (Humphreys 2005).

However, Weisbrot et al (2006) assert that there is a great level of variation on the prospects of natural resource among resource-rich countries. Some resource-rich countries, usually developed ones, have performed far better than their counterparts in the developing world. For example, about three decades ago, Indonesia and Nigeria had comparable per capita incomes and heavy dependencies on oil sales. Yet today, Indonesia's per capita income is almost four times that of Nigeria (Ross 2003). The basic question to ask is that what Indonesia did right that Nigeria could not do?, As Hannesson (2001) explains, perhaps investing in the highest-returning assets such as basic infrastructure is the best way to make resource wealth permanent. Again, Weisbrot et al (2006) argue that the varied effects of resource wealth on well-being can also be found within the country as well. Resource-endowed countries often suffer from a high level of inequality even though they have performed well. As Sarraf and Jiwanji (2001) elucidate resource wealth is often in the possession of a few corporations and also the public elites which serves as an incentive for rent-seeking activities. The wealth has benefited mostly the elites in the resource-rich countries through certain dubious practices.

The curse of natural resource on political and economic prospects in developing countries raises many unanswerable policy questions for governments of developing countries and for the international community. To name a few, should the World Bank offer financial support for the extraction of Chad's oil reserves: if so, under what conditions? Should Mexico sell out its state-owned oil companies to private entities? Should Nigeria's state-owned oil corporation be changed into fully privatised commercial company? What has been the achievement of the stabilization fund so far in oil-rich developing nations?

Methodology: This piece of academic writing was carried out mainly with the use of qualitative research. It was much easier with this type of design due to the low cost of accessibility to information and less time required. Resource and time constraint were considered. Primarily, the needed data and information was gathered through secondary sources: reliable text books, journals/magazine articles, news, magazines, commentaries and internet. However, initial plans to resort to primary source of information as well proved futile as all efforts to have telephone interviews with some major stakeholder representatives were not successful. The secrecy involved in the oil industry could be a factor.

First, a thorough search for relevant materials in this subject area was carried out. The materials were gathered from the school library and some relevant literatures were also found via the internet. In-depth readings were done where most common literatures about the subject matter were noted, analysed and evaluated. Some vital lessons were drawn from them and inculcated into this piece of academic work. Moreover, observing the trend on this subject, in most cases, there was room to analyze relevant issues central to addressing the research problem. This offered the opportunity to brainstorm and find other viable solutions to the problems considered.

Finally, the gathered data were processed in a way that best could solve the problems in the discussion and general conclusions were drawn to finalize the issues concerned about the subject matter.

3 Literature review

Oil discovery has occurred in many countries around the globe. Many experts in this field have added their view on how the rent accruing from the extraction must be managed to ensure it benefits the entire population of the nation in which the discovery was carried out. However, there have also been suggestions on its negative implications when not properly managed. This thesis gathers evidence, classifies and analyzes it critically and draws conclusion in comparison with what has already been discussed.

Hannesson (2001) discusses the question of making resource wealth permanent, arguing that the best strategy is to invest resource revenues in the highest-returning

assets, such as education, health, roads and other infrastructure in developing countries like Ghana. This is however true in the sense that "effective infrastructure supply supports economic growth, enhances quality of life and it is vital for national security" (Baldwin & Dixon 2008:32). For it is with the provision of infrastructure that the current and future generations will be happier than with some unknown value of money deposited in a bank overseas from which political elites will be using to enrich themselves. In this season of global financial hardship, one cannot be sure that this amount of money will be available in some years to come when the reserves are dried up.

Macroeconomic policy implementation research has been instituted to counter the negative effects of oil of a growing resource industry that overshadows other industries, promotes massive borrowing and public spending, and suppresses growth in the long-run. Davis et al. (2001) consider the function and misuse of savings and stabilization funds in managing non-renewable resource wealth. They argue that the existence of funds have rarely been able to address the issue of volatility in oil prices and especially that of savings for future use to the expected standard and hence there seems to be a strong case for government to be cautious about policies pertaining to oil revenue. The principle underlying the stabilization fund is applaudable. However, government should be cautious about the use of the resources saved in the fund as suggested above by Davis et al. (2001). It should not be used as a source of fund to cover up the shortfalls in the general budget whether they occur as a result of oil price volatility or not. The use of the fund to supplement the shortfall in non-oil revenue should be prohibited otherwise it will encourage government to relax in the mobilization of traditional revenue which could promote indiscipline in the fiscal policy process that can feed into dependence on oil fund.

Sachs & Warner (1995) identified that resource sectors have weak linkages with the rest of the economy because imported inputs and capital-intensive production generate little employment; therefore, the real impact on the overall economy depends on how the wealth is used. The capital intensiveness in exploiting oil in most developing countries has transferred employment power to the foreign investors who have the necessary capital to invest. This however creates fewer jobs for the local people than is expected. This situation leaves the government share of the revenue as the major tool for greater economic transformation. In this sense only good management policies will

ensure that the nation benefits significantly from the oil discovery. Sachs and Warner (1995) again argue that oil abundance is a key negative determinant of economic growth. These empirical results are themselves controversial but the point here is to argue that the criterion itself is not sufficient. Lower growth in the long run does not necessarily mean that the oil is a curse. A country can experience a windfall, which raises income and consumption in all periods but does not produce faster growth, and indeed it may even slow growth. Even if growth slows after the windfall, consumption, the usual aggregative measure of welfare, may still remain higher in all periods because disposable income is higher than if the economy had not had a windfall but had grown faster. Thus, the empirical observation referred to above, that resource abundant economies tend to have lower aggregative growth, is not in itself sufficient to demonstrate that oil is a curse.

Saraf & Jiwanji (2001) outline many reasonable issues of the resource curse. Firstly, the increased sudden availability of foreign exchange, if not managed well, causes a significant appreciation of real exchange rate, further damaging the competitiveness of manufacturing and other tradable industries. Meltdown of the manufacturing industry may also lead to less educational investment and labour productivity. Unsuccessful protectionist policies are another frequent end result. This number of problems, known as Dutch Disease (whereby the local currency of a nation appreciates which encourages lower prices of non-traded export produce as a result of which exports are discouraged) is less important for resources that are exploited at a sub-national level. However, at the national level, Dutch disease has been a major problem in managing oil wealth. In this instance there is an uncontrollable appreciation of a country's currency over the medium to long-term period. In the situation of a developing nation like Ghana, this can lead to a situation where Ghana's currency, the cedi price for export products such as timber, pineapples, cocoa and other non-traditional export products will be so low that farmers and other exporters would feel discouraged. This situation can destroy the agricultural and non-traditional export industries if not managed with care. However, Dutch disease can be managed by either investing in foreign bonds, paying off most of foreign debts or more so in engaging in public infrastructure investment such as public goods and merit goods.

A second problem is that the volatility nature of prices and production quantity of primary goods, lead to highly fluctuating exports and government revenues. Higher production and price times can create fiscal indiscipline, leading to market discipline relaxation. Saraf & Jiwanji (2001) assert that boom-based borrowing to expand public infrastructure can lead to unsustainable expenditures and burdensome debt after the boom. Moreover, once there is an expansion of government's expenditures, their contraction may be difficult. Boom times associated with capital inflow can lead to increased careless spending which can result in a higher inflation rate and lower levels of domestic savings. During bad times, there will not be enough funds to cater for the budget deficit which can force government to abandon most developmental projects.

Finally, Saraf & Jiwanji (2001) argue that since resource wealth tends to be possessed by a few companies and the public elites, rent-seeking behaviour is often a problem. Most of the resource wealth is possessed by powerful foreign investors, bureaucrats and some influential private investors. They engage in all forms of rent-seeking activities to maximize wealth for themselves alone. This therefore deprives ordinary citizens from benefiting from the resource wealth. Institutions built of strong accountability and transparency can be used to avert this unpleasant situation to ensure greater economic benefit for all.

4 Positive effects of Ghana's oil discovery

Oil production arguably brings enormous blessings to the people of oil-rich countries when all appropriate measures are deployed to manage all the wealth associated with it. Some of the major benefits that the oil activities could bring to the Ghanaian economy are discussed below

4.1 Macro-economics

Macroeconomics deals with the performance, structure, and behaviour of a national or regional economy as a whole. It involves economy-wide issues such as fiscal policy, inflation, and economic growth and development (Driscoll 2001:9). The positive impact of Ghana's oil discovery on the performance and behaviour of the economy are analyzed in terms of Gross domestic product (GDP), foreign exchange and fiscal expansion.

Ghana is placed among the group of countries with a lower middle income following a threefold increase of its real gross domestic product (GDP) (African economic outlook 2010). The significant increase in Ghana's real GDP rate from 4.7% in 2009 to 5.9% in 2010 signifies how strong Ghana's economic growth has been over these years. Growth strengths are even higher as real GDP of 12% growth rate and about 11.0% GDP are anticipated for the years 2011 and 2012 respectively relying on the start of earnings from the oil production which began in December 2010 (African economic outlook 2010). Furthermore, the country's stable democratic and stable social environments have boosted foreign investors' confidence, triggering a rise in investment.

However, setbacks remain, such as a very weak fiscal position and fragile external balances. Growing fiscal challenges include large domestic payment arrears (African economic outlook 2010). Furthermore, the government's newly adopted public sector payment policy known as the single spine salary policy: A structural adjustment program to address the issues of pay disparities, fairness, transparency and equity in the public sector, needs a high budgetary cost which could undermine macroeconomic stability unless government intensifies its efforts in mobilizing domestic revenues. Strong and sustainable investment over many years will need perpetual high levels of investments especially in the manufacturing sector, and in public infrastructure; this will be conditional on proper policies regarding the oil wealth management. Furthermore, the government should create training opportunities to equip the unskilled labour force with relevant job skills to overcome the unemployment and underemployment challenges.

4.1.1 GDP increment

First, the Jubilee field is expected to yield initially 120,000 barrels per day increasing to about 240,000 barrels per day and yielding on average about \$5 billion worth of crude oil and gas as an addition to Ghana's national GDP (Modernghanaonline 2009). This will increase GDP from \$18 billion in 2010 to an estimated \$23 billion in 2011, immediately increasing growth rate by 28% (The World Bank 2009). With about 23 million population, it means that there will be per capita GDP increment of an estimated value of \$213 from 2010 with a value of about \$769 to 2011 with a value of about \$982 as a result of the oil discovery. As GDP gauges the health of a nation's economy, it therefore means that Ghana's economy could grow by 28% which will be a significant

achievement. With more wells discovered and in the process of development, Ghana can be hopeful of further economic growth increments.

4.1.2 Foreign exchange availability

Second, the oil find will transform the external position of Ghana. It is estimated that about \$1 billion revenue will be available directly to the government through the foreign exchange on oil export (World Bank 2009). Furthermore, the foreign exchange would further increase in Ghana as a result of the money that would be brought in by foreign oil companies to cater for domestic expenditures such as rent and paying for local labour and other acquisitions. These transactions will improve the availability of foreign exchange and help resolve the usual foreign exchange shortages and the related depreciation of the cedi, Ghana's local trading currency, bringing the country into an era of continuous exchange rate appreciation of the cedi with respect to currencies of major trading countries. The country's current account deficit can also be improved considerably due to the foreign exchange availability.

4.1.3 Fiscal expansion

Fiscally, experts say about \$1 billion oil revenue will be available to the government from the Jubilee field (The World Bank 2009). This will encourage fiscal budget expansion allowing for rapid spending on development activities and projects such as basic social amenities and infrastructure without hurting the stability of macroeconomic implementation. Moreover, it will discourage borrowing by government from banking and other financial institutions. This situation will make more loans available to the private sector to enable it effectively contributes to the overall development of the economy.

4.2 Micro-economics

Micro-economies can be described as part of the national economy which concerns activities of stakeholders such as: individual firms, household and consumers. The attitudinal changes Ghana's oil boom could bring upon individual firms, household and consumers in Ghana could be discussed in terms of employment creation and consumer spending.

4.2.1 Employment creation

There is no doubt about the fact that direct and indirect jobs will be created which will ease the unemployment situation in the country. Some locals will be employed directly on the rigs. However, that number may be few. There should be active encouragement to engage the local entrepreneurs in the emerging oil industry. However, that participation will be small due to the sector's capital intensiveness. There should be an initiation if the nation is to avoid the same situation as it had happened in other natural resource exploitation such as gold and bauxite whereby local entrepreneurs were not given financial incentives and other entrepreneurial aid and skills to engage in that industry but rather foreign firms with powerful financial backing took over the industry. It is advisable to encourage Ghanaians who desire to take risk to succeed in business through commendations and other business advice. The politics of envy presently happening in Ghana will not help build a new Ghana of economic prosperity.

Furthermore, the creation of downstream businesses which includes oil refineries and petrochemical industries are highly possible. There is also the potential of allied businesses such as salt manufacturing. The movement of workers to and from the rig will also encourage the need to create both air and sea transportation services. The expansion of business such as banks, restaurants, vendor shops and real estates will also occur.

The extended positive effects of the newly created businesses to the economic boom of local communities around the rig site and nonetheless to the overall economy will be great. However, these developments need to be exploited with greater care to realize economic benefits. For example, the choice of floating production storage offloading system as a production method can limit the development of downstream businesses such as refinery and other petrochemical industries thus limiting the value addition and employment creation potential (Modernghanaonline 2009).

4.2.2 Consumer spending

Economists claim that consumers cultivate the habits of spending when there is more money in their pockets. This becomes the trend when oil wealth starts flowing in a country. As oil cash begins to flow in a country, this will have a positive effect on com-

pensation of employees. Employees experience a significant pay rise which therefore encourage more spending. Government may be tempted to introduce tax relief on workers' salaries as it may tend to rely heavily on the oil rent for revenue mobilization. This situation could create a pay rise which could serve as incentive for more people willing to work. Government spending may increase, with the increase going primarily into public sector wages, pensions, consumer subsidies for expensive products and social services.

5 Negative effects of Ghana's oil discovery

Political scientists often talk of "oil curse" emphasising that resource-rich countries often are slow in growth, corrupt, less equitable, violence prone, and with more authoritarian government compared with those with fewer resources. There is a strong association between resource wealth and the likelihood of weak democratic development (Ross 2001), corruption (Salai-Martin and Subramanian 2003) and civil war (Humphreys 2005).

To understand the nature of natural resources, we need to comprehend what differentiate natural resource wealth from other wealth types. There are two major issues involved in this sense. The first issue is that natural resource wealth, compared with other sources of wealth, need not to be produced. It simply needs to be extracted (Ross 2001). In "The paradox of plenty", Terry Lynn Karl (1997:52a) contends that since it is not a result of a typical production process, the creation of natural resource wealth can occur quite independently of other economic processes that occur in a country. For example, its creation can occur without depending on other industries of the economy and also a greater number of the domestic workforce.

Natural resource extraction can also take place quite independently of other political processes; a government can often access natural resource wealth regardless of whether it commands the cooperation of its citizens or effectively controls institutions of state (Ross 2001). The second major issue is about the non-renewable characteristics of many natural resources such as gas and oil. From an economic view point, they are thus less like a source of income and more like an asset (Ross 2001).

These two features; the isolation of the oil sector from domestic political and economic processes and the non-renewable nature of oil resource give rise to a large array of political and economic processes that produce adverse effects on an economy (Humphreys et al. 2007).

5.1 Macro-economic impact

As the oil boom could create macro-economic growth, however, it could also cause serious inconveniences to macro-economic growth. The major macro-economic inconveniences that could occur to Ghana's economic growth effort includes the following.

5.1.1 Dutch disease

The oil revenue will creates serious negative impact on the economy if it is not managed properly. This means that the oil wealth could encourage indiscipline with monetary management. The sudden increase in foreign exchange as a result of an appreciation in the value of oil export can lead to an uncontrollable appreciation of Ghana's local currency, the cedi, over the medium term to long term period. This can result in a situation where the cedi price of exports such as cocoa, pineapple and other non-traditional export products will be so low to discourage farmers and other exporters or too high to encourage buyers (Modernghanaonline 2009). This phenomenon is referred to as 'Dutch Disease'. Eventually, domestic materials and land resources are pulled to the natural resource industry. Adversely, the domestic market encounters higher price resource sales, thereby adding to the costs of production in other industries. This could destroy Ghana's agricultural and non-traditional export industry if such occurrence is mismanaged. A typical example could be cited in Nigeria; a sharp rise in Nigeria's petroleum exports in the 1960s and early 1970s lead to an appreciation of the exchange rate. The higher exchange rate made it virtually impossible for firms in the agriculture and manufacturing sectors to sell their goods profitably abroad (Ross 2003). Booming oil exports crowded out agriculture and manufacturing exports, and hence, jobs in these sectors (Ross 2003). The economy can be affected negatively, as employees will have to be retrained and search for new jobs, and the distribution of capital needs to undergo readjustment.

Again, the shift that would be caused by the Dutch disease could create another side effect. This can be described as the inequality in income distribution; if revenues from

other export industries such as manufacturing and farming are equitably distributed than revenues from natural resource, then this industrial shift can cause a rise in inequality. By and large, the Dutch disease is a major worry down the end; when activities in the oil resource sector eventually slow down, other sectors of the economy will find it difficult to recover (Ross 2003).

5.1.2 Income volatility

The Dutch disease syndrome emerges as a result of increased availability of oil revenue; other devastating effects occur due to the timing of oil rent earnings. Revenues from oil production if considered as a source of income are highly volatile (Ross 2001). There are three sources of the volatility: the variation over time in rates of extraction, the variability in the timing of payments by corporations to states, and fluctuations in the value of the oil produced (Humphreys 2009). Let consider figure 5.1 to demonstrate the first two variability sources. This indicates earnings projection for Chad from the sale of oil over the period 2004-2034. Initially, the oil price rises sharply, a rapid fall immediately follows, then again another rise, and finally, a decline. This occurrence comes from two different sources. The first is the time variation in the extraction rate. A typical pattern is to have front-loading of extraction rates since production volumes tend to reach a peak within the first few years of production and then gradually descend until production stops (Ross 2001). Practically, there is a higher risk that Chad's oil sales volatility will further increase through the conflicts within the producing regions. The second major source of volatility occurs from the nature of the agreement between the producing companies and the government (Ross 2001). In the Chad case, some oil firms were exempted from taxes on earnings for the first years of production (Ross 2001). As taxes contribute significantly to government revenues, Chad's revenue base should improve at the institution of taxes.

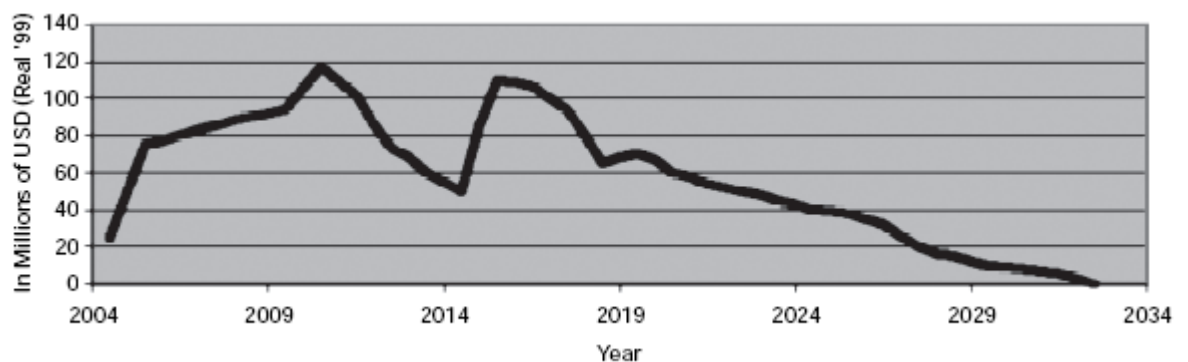


Figure 5.1 Revenues to Chad, Base Case 917 MM BBLs, US\$15.25/BBL.
Source: World Bank inspection panel (2000)

The third major source of volatility arises from the highly volatile nature of oil and gas prices. Figure 5.2 shows the price of oil over a period of 20 years. Note that while there is a very clear upward trend over these years, the variation around this trend is very great with week on week changes of plus or minus 5 to 10 percent relatively common (Ross 2001).

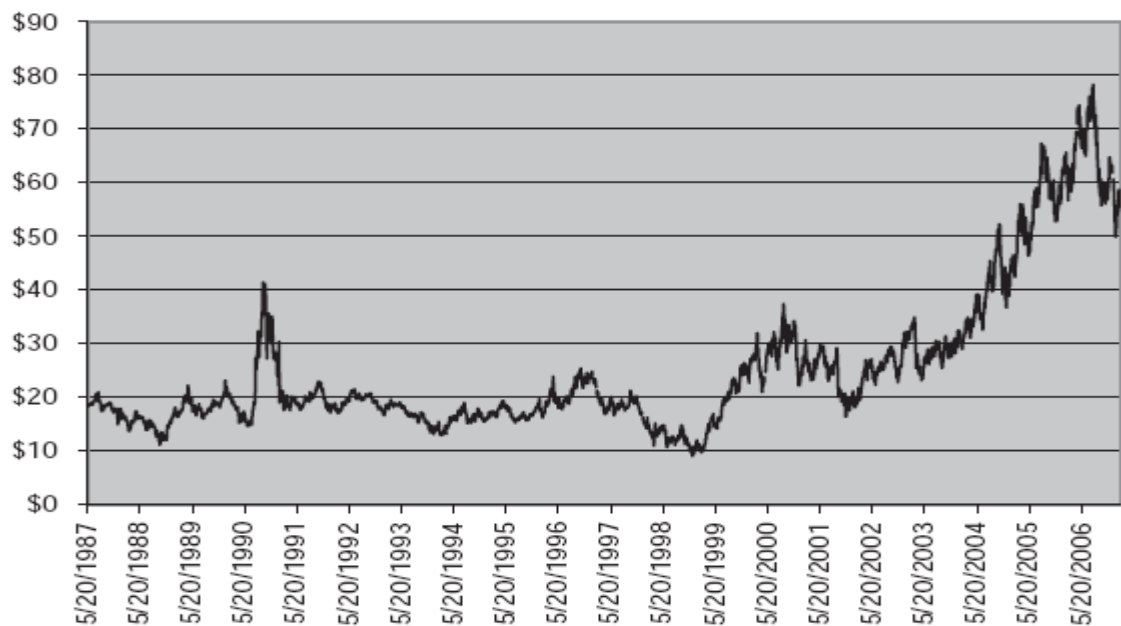


Figure 5.2 All countries spot price weighted by estimated export volume (US dollars per barrel)
Source: World Bank inspection panel (2000)

5.1.3 Democracy threats

Aside these economic and financial concerns, there are also the political dynamics associated with oil dependence that can exacerbate the oil curse. As earlier mentioned, oil-rich economies are prone to political instability, higher corruption levels, and, in Africa at least, to suffer from tribal uprising within their countries. In effect, oil money can enable leaders to suppress their political rivals, and successfully secure their grasps on power to avoid election defeat. A clear example could be cited in Gabon where the late president, Omar Bongo used Gabon's oil wealth to protect himself in power for more than two decades until his untimely death in June 2009. The opposition were too

weak to win presidential polls in Gabon and Mr Bongo succeeded in integrating most of the opposition into the government. The ability of the government to rely solely on oil money to finance government spending makes it difficult for the government to leave power for access to traditional tax. National oil companies can serve as a power base for nondemocratic governments as well as a source of internal corruption (Soros 2007). They are however, liable, to worsen the agency problem (government, the agent of the oil exploration does not serve the interest of the principals, the citizens of oil-rich countries) at the governmental level. Oil rents provide a nondemocratic government both with the financial means and the incentive to maintain itself in power. Mostly, during elections, government rely heavily on monies from state oil companies to rig polls because the state oil companies are not liable to the public. George Soros (2007) argues that “when the rulers have access to revenues that do not pass through the national budget, or the budgets are not transparent, there is an agency problem and democracy is endangered”.

5.1.4 Environmental pollution

Environmental problems are inevitable when oil has to be extracted from the ground. Oil spills, damaged lands, accidents and fires, and incidents of air and water pollution have all been recorded at various times and places (E&P Forum/UNEP 1997). It is certain this will also be the case in Ghana during the exploration of the oil find. However, proper management practices, technologies and procedures can be used to minimize these effects. The continued coordination among stakeholders such as oil firms, contractors and suppliers is essential to implement the best environmental management practices to accentuate the negative effect that could occur during the exploitation and production of oil. There is also the possibility that human life could be affected as a result of the environmental damage caused by oil production. Humans suffer from environmental consequences through the damage to livestock, farms, and the human body itself. Oil spillage can also interfere with the normal working of power stations and desalination plants that require a continuous flow of clean seawater (E&P Forum/UNEP 1997).



Figure 5.3 Ogoniland oil spill in Nigeria
Source: Businessday online (2011)

A typical example of environmental pollution as illustrated in figure 7.3 as a result of an oil spill could be cited in Nigeria. In the Nigerian coastal environment, large areas of the mangrove ecosystem have been destroyed. The mangrove was thought to be a fuel wood for the indigenous people and a habitat for the area's biodiversity, but now unable to survive the oil toxicity of its habitat (Nwilo & Badejo 2005). Oil spill in Niger delta has been a regular occurrence, and resultant degradation of the environment has caused significant tension between the local people living in the region and the multinational companies (International Monetary Fund 2005). The recent United Nation reports on oil spill in Ogoniland in the delta state reveals that it could take about 30years for the people of Ogoniland to recover fully from the oil damage. The study concludes that restoration of the environment to its original state could make it the world's biggest and long term clean up. Another example of environmental damage caused by oil spillage can be seen in the Gulf of Mexico where BP, a British oil company, was involved in the Deepwater Horizon accident causing a huge oil spill in the Gulf of Mexico. Large quantities of oil spill that got to the shoreline as a result of the accident at deep water area affected negatively the environments of Louisiana, Mississippi, Alabama and Florida (BP Sustainability Reports 2010).

In summary, usually, the costs to the oil exporting nations are in these forms: slow in economic growth than expected; weak economic diversification; unencouraged social welfare; high levels of poverty, lack of equity and employment; higher than average corruption; governance is poor; dictatorship rule, weak rule of law; rent-seeking behaviour; often environmental destructions; abuse of human rights; and higher possibility of regional conflict and war.

6 Ghana's experience with the mining industry: Gold, bauxite and manganese

6.1 Economic impact of mining in Ghana

Mining activities contributed to Ghana's economy positively in one way while affected the economy negatively in another way. Some of the mixed impacts are explained below.

6.1.1 A boom in mining activities

Ghana's mining industry has strong potential to generate taxes and associated revenue and employment, strongly enough to bring greater economic gains to the country and improved livelihood for the people (Akabzaa 2000). However, multinational companies enjoy high concessions of taxes from the government as a means of incentives to attract them. This form of taxation affects government's earnings and therefore hinders national economic development programmes. Positively, there has been a boom in mining activities in Ghana after the World Bank and the International Monetary Fund (IMF) jointly saw to the implementation of the structural adjustment program (SAP) in Ghana. Since the implementation of the reforms in 1983 to present, the sector has seen higher growth in investment, mostly in the gold sector. In addition, the sector has attracted a number of mining support companies such as catering, transport, housing and security companies (Akabzaa 2000). The sector now accounts for more than 30 percent of gross foreign exchange earnings as can be seen in table 8.1

Table 8.1 Contribution of mining sector to gross exports value

Source: Ghana mineral commission (2007)

Years/US\$(millions)		2000	2001	2002	2003	2004	2005
Total export	1431.2	1936.3	1867.1	2015.2	2602.6	2739.2	2836.2
Total mineral ex- port	679.9	756.0	691.4	753.9	893.6	880.0	995.2
Minerals % of ex- port	47.44	39.04	37.03	37.41	34.33	32.1	35.1

6.1.2 Underdevelopment

However, a majority of the Ghanaian population feels that despite the vast improvement in the mining sector, this has not added to the integrated economic development and increased social well-being or livelihood security nor has it reduced the vulnerability of local communities (Akabzaa and Darimani 2001; Aryeetey, Osei and Twerefou 2004). Aryeetey et al (2004) claim that despite improved performance of the sector as the preferred destination of Foreign direct investment (FDI) and dominant gross foreign exchange earner, this has not reflected visibly on the performance of the national economy. The benefits of the industry have been unfairly appropriated by the mining firms and a limited number of elites who benefit in the form of consultations, rent-seeking and other dubious activities, while other traditional rulers benefit from the royalties at the neglect of their community citizens (Aryeetey et al. 2004). Indeed, the current economic situation in Ghana suggests that the country has not seen massive economic development despite a significant improvement in investment of the mining industry. This argument implies that the improved investment in this industry could have transformed the livelihoods of the towns in and around the mining area, and also contributed to employment and government revenues. With Ghana lying relatively low on the United Nation (UN) Human Development Index, ranking 131, there is explicit evidence that shows that poverty is widespread in Ghana (United Nations Development report 2006).

It has been observed that the country is deficient of a significant number of reliable programmes on a medium to long term basis for the utilization and consolidated development of mineral resources (African Economic Outlook 2010). The governance of

the sector by weak legislation that is sometimes contradictory makes it impossible for the country to achieve the needed national economic development goal.

6.2 Social impact of mining in Ghana

Mining extraction also affects indirectly the socio-cultural environment of a country. Such social impacts ranges from health, conflicts, drug related issues and other social vices such as prostitution and alcoholism.

6.2.1 Health issues

A survey conducted at Obuasi hospital, a health facility in a popular gold mining town called Obuasi in the Ashanti region of Ghana revealed a high prevalence of upper respiratory tract infection in the area which medical experts in the area say this was as a result of the mining activities and associated pollution (Awudi 2002). At Tarkwa, another popular mining town in the western region of Ghana, mining impact related diseases such as malaria, diarrhoea, upper respiratory tract infection, skin disease and accidents constitutes the top ten health problems in that town according to a survey conducted by Friends of the earth (FOE) in Ghana at Korle-Bu hospital in 2001 (Awudi 2002). The area has the highest rate of malaria infection in the western region and the entire country as a whole. Skin rashes are widespread in the area especially those at the river areas and streams which regularly are contaminated by leaked cyanide waste waters (Akabzaa and Darimani 2001).

6.2.2 Conflict issues

At Tarkwa, there have been series of violent clashes between the local population and the mining companies. This occurred when the communities believed they have not been properly compensated for lost farmlands. Under-valuation of property to relocate the people has also seen massive agitation between them and the mining firms. Furthermore, in 2002, the youth in the Tarkwa community embarked on a wakeup call to demand a share of the royalties for massive developmental projects such as portable drinking water, sanitary facilities and other infrastructure, emphasising that the share that was paid to the local authorities in the area has not been used for the overall betterment of the people in the community (Tsekpo 2002).

In addition, a number of social vices such as prostitution, drug related problems, divorce and sexually transmitted diseases such as AIDS are prevalence in the mining communities at Tarkwa in the western region of Ghana and another major mining town called Obuasi.

6.3 Environmental impact of mining in Ghana

Countries that engage in natural resource extraction activities are without some damages to their environments. Water and land pollution could be cited as some of the environmental consequences associated with the extraction industry.

6.3.1 Water pollution

Small scale mining operations in Ghana have polluted a number of water bodies such as rivers and streams in the mining communities by discharging solid suspension and mercury during sluicing and amalgamation. This has led to coloration and chemical pollution of rivers and streams that provides drinking water for the mining communities (Aryeetey et al 2004).

6.3.2 Land degradation

Furthermore, land degradation has occurred in most mining communities in the Wassa West district where lands that used to be fertile for farming activities are no longer fertile and as a result farming activities have reduced drastically. The mining activities on these lands have degraded lands and forest and destroyed the vegetation, including economic timber species and the ability of natural forest to regenerate.

In a nutshell, there is ample evidence that shows how mining activities have contributed immensely to foreign direct investments and export earnings in Ghana. This no doubt added significantly to government tax mobilisation and revenue gains. However, poor institutional structural establishment coupled with corrupt practices and unfavourable mining laws have dwindled down the positive effects these benefits could have brought to Ghana's economy. This is also a clear indication that, the structural adjustment program enforced on Ghana's economy by its' major creditors, the IMF and the World Bank, with the motive for transforming Ghana's economy has failed. However, the IMF and the World Bank have been reluctant to reverse this effect on Ghana's economy, perhaps due to their strong connections with multinational corporations. The

Multinational corporations are the major economic beneficiaries in Ghana due to the World Bank and the IMF initiated programme known as the Structural Adjustment Programme.

7 Countering the oil curse

There are certain internationally accepted measures that oil-rich countries could follow to realise the benefits that their countries must get from their oil wealth. The focus on government is natural: these actions will work only if government leads the way. However, this will also require concerted efforts from their populations, international communities, international oil corporations and their home governments, and those in consuming nations to help enforce these measures. The World Bank (2009) argues that "Ghana's reserves are relatively modest by international standards, and will thus not radically transform Ghana's economy into one where oil becomes the major sector". However, its quantity is huge enough to deeply transform the economy of a non-oil country either positively or negatively. Ghana should as a matter of economic prosperity adhere to the managerial principles elaborated below.

7.1 Handling the macro-economics of the oil fortune

The directions and strategies involved with turning the oil fortune into macro-economic blessings are discussed in this section.

7.1.1 Oil wealth investments and savings

First, development depends on a mixed economy, in which both public and private investments add to economic growth (Sachs & Warner 1999:174). Public investments are needed to finance two kinds of goods: public and merit. Public goods are goods that would not be produced in a market system that is free simply because of companies' inability to charge adequately for their use. This is because of its two unique characters: they are non-excludable (once the goods are provided, it is inevitable to exclude people who haven't paid from using them) and non-rival (this means when people consume goods, the amount does not reduce for other users (Biz/ed 1996). Some examples are environmental protection, national defence, the rule of law and a basic infrastructure network (roads, power, and sanitation). Merit goods however, are goods that would be produced in a market that is free but would not be sufficiently be

provided by firms. Examples of such goods are basic health care, basic education, social insurance for unemployment and disability, safe drinking water and sanitation (Biz/ed 1996). The provision of merit goods to the poorest members of the society has indirect benefits for the entire society in the form of enhanced political and social stability which implies positive externalities (Warner 1995).

Coupled with this, public investments should be based on a "sound macroeconomic strategy, meaning a budgetary framework that preserves both short-run macroeconomic stability and long-term fiscal solvency" (Sachs & Warner 1999:175). Macroeconomic stability describes price stability, and the nonexistence of sudden cuts in spending that occur from a sudden worsening of credit terms. Fiscal solvency, of course, means the management of the public sector to maintain the ability to service public debts without crisis. The investment framework should consider the characteristic instability of oil earnings on a year-to-year basis, and eventual depletion of oil reserves. Because of both depletion and volatility, a "sustained" level of oil income flows should be separated from the oil earnings in any particular year. Relying on the sustained profile of oil income, a sound public investment profile should be adopted for incorporation into annual and medium-term budget frameworks.

Third, public investment spending should be seen as a complement rather than substitute for private investment spending. In reality, this means defining explicitly the respective roles of the public and private sectors in the economy. Public investments should be focused on public goods and merit goods as discussed earlier, allowing the private sector free to build a private-owned economy alongside the public investments.

Fourth, the public investment spending should be part of a development strategy with a time frame of a decade or more, since many public investments have long lead times. If public investment projects are done too quickly, inefficiencies are bound to increase because of limited absorptive capacity in the domestic economy. For example, increased physical investments in health and agriculture are far more effective when combined with long-term training for workers in those sectors, to avoid skill shortages and other bottlenecks (Sachs & Warner 1999:176).

The key recommendation is that oil earnings in low-income countries such as Ghana should be invested in public goods rather than spending it heavily on private consumption in order to break out of a poverty trap. Most poor countries are severely challenged in their development by the underprovision of public goods. Economic development, though requiring a predominance of the private sector in agriculture, industry, and services, also depends on core public goods (Humphreys et al. 2007). These are generally deficient in poor countries, sometimes so much that their absence retards investments by the private sector and leaves countries in poverty trap. The poverty trap works as follows: poverty → Lack of public finance → Lack of public goods → Lack of private investment → Poverty.

Last, the real fear of the Dutch disease, in summary, is that the non-oil export sector will shrink, thereby crippling a major source of technological improvement in the economy. However, this Dutch disease nightmare can be mitigated if the oil proceeds are used to finance public investment as part of a national development strategy (Humphreys et al. 2007). Let us assume that the rents from the oil earnings are being invested in infrastructure (roads, power and telecom). Suppose for the moment that all of the investment goods are directly imported by the government with the oil rents. There is no direct spending effect of oil income in the country. Consumption raises to the extent that the non-oil sector (both traded and non-traded) expands as a result of increased public investments sponsored with the oil income. Production and consumption of both traded goods and non-oil traded goods increase. The real exchange rate at current equilibrium may or may not appreciate relative to the initial equilibrium, but this does not matter very much, since the non-oil traded goods sector expands continuously at any given event. It expands as a result of the increased productivity due to public investment.

In summary, the Dutch disease becomes a problem when the oil wealth is used to finance consumption rather than investment. This means the non-oil traded industry could shrink on a sustained basis, with negative implications for long period growth. The probability of this occurring is slim when oil wealth is used for public investments in economies such as that of Ghana which is deficient of public goods, especially infrastructure. In that case, the positive effects of increased public investments on the non-

oil traded sector are very likely to outweigh any negative consequences of real exchange rate appreciation.

Oil-rich poor countries have sometimes been urged to establish a national financial savings fund (sometimes held in foreign stocks and bonds) and to spend only the income on the financial assets in that fund. The idea is to create an endowment fund that will be used to finance public outlays into the future, for example, pension benefits. Sachs and Warner (1995) contend that this kind of advice identifies that with a depleting asset like oil, there is a strong case for smoothing consumption (balancing savings and spending) over a much longer time frame than the depleting income flow from the oil itself. However, policy makers face a choice among four kinds of long-lasting assets: oil in the ground, financial assets (e.g., foreign exchange reserves), physical assets (e.g., roads), and human capital (e.g., a better educated labour force).

For poor countries such as Ghana, it is much more sensible to turn oil earnings quickly into physical assets and human capital. It may even make sense in these countries to borrow against future oil earnings for the sake of increasing investment outlays on high-return public investments (World Bank 2009). However, this latter option requires great thorough assessment because of the volatility of world oil prices and capital markets.

7.1.2 Exchange rate policy

In a normal situation where the real exchange rate tends to increase in the wake of an increase in oil booms, government policy makers can create that appreciation in two ways. First, the central bank maintains a floating exchange rate (a volatile exchange rate determined by the private market through supply and demand). The oil wealth creates an improvement of the nominal exchange rate (the official quote of an exchange rate) vis-à-vis the dollar and euro. This puts downward pressure on the local currency prices of non-oil traded products which leads to a fall in the prices of traded goods in relation to non-traded products (i.e., a real appreciation). Second, the nominal exchange rate of the national currency is pegged to the U.S dollar, or euro. Now the increase in domestic spending that occurs due to increased oil production leads to a rise in prices of non-traded goods, while traded goods prices are kept at a constant because of the constancy of the nominal exchange rate. Once again there is a fall in

traded good's price compared to non-traded good's price (i.e., a real appreciation) (Sachs & Warner 1999: 187).

Sachs and Warner (1999:187) maintain there is no decisive case as to which of these mechanisms is to be implemented. For small countries like Ghana challenged with large structural transformations, instability in the demand for local currency and the uncertainties of oil and capital flows, there is probably a preference for maintaining an "adjustable peg" exchange rate, wherein the central bank keeps the nominal exchange rate stable, but reserves the option to make devaluations or revaluations in the future. (When oil prices fall suddenly, for example, the central bank might undertake a devaluation to reduce non-traded good's relative price). It is perfectly possible that the exchange rate appreciates, and also that the non-oil tradable production expands. Again, in poor countries like Ghana with large deficient infrastructure, the productivity gains in the non-oil tradable sector that result from new infrastructure investments (especially in power, roads, telecoms, and port facilities) are likely to overshadow any negative effects on production caused by exchange rate appreciation due to public investment spending. This conclusion will at least apply over a period of a few years (enough time for the infrastructure to get into place). Therefore, the notion that the government should withhold investment spending in order to avoid real improvement of the exchange rate, in order to protect the non-oil tradable sector, is very likely to be wrong in practice.

7.2 Ensuring fairness and equity of oil wealth distribution

One crucial path to success is concerned with managing the effect that the oil wealth has on income distribution: this includes the vertical distribution of income (between rich and poor) and the horizontal distribution of income (across regions of a country). Inequality of these kinds can be catastrophic: the increase in vertical inequality may discourage development, and can lessen the poverty-reducing powers of economic development (World Bank 2001); horizontal inequality---and sudden changes in horizontal inequality---can lead to violent conflict (Stewart 2009). Some of the major responses to counter these effects are discussed below.

7.2.1 Oil income distribution

An oil boom can have negative implications on the labour force. This can occur in the form of vertical inequality: the large gap between rich and poor. This menace can result from the existence of the Dutch disease, where other industries of an oil-producing country's economy are crippled by the oil industry, thereby displacing most of the workforce. A prudent approach to deal with this negative effect on the economy is, first, that any nation that suspects a significant increase in oil and gas money should establish research on how growth in the oil and gas sector will affect the distribution of income. Failing to work on these effects will likely make it more difficult to deal with the growing inequalities when they occur. If research suggests that oil revenues will widen the gap between rich and poor, government can institute some types of solutions: first, they can try to compensate the job losses in the agriculture and manufacturing sectors by promoting productivity and export growth; second, they can create new government jobs to give employments to displaced workers in these sectors; and third, they can implement targeted pro-poor policies (Ross 2006).

Indonesia's strategies offer a good illustration, and provide a sharp contrast to Nigeria's policies. In the 1960s and 1970s, the Indonesian government adopted many programs targeted toward the poor, including universal primary education, price controls on food and fuel, and rural public works projects; the Nigerian government did nothing comparable. The Indonesian government also took measures to enhance agricultural production and to devalue the exchange rate, allowing exports to remain competitive and avoiding the collapse in agricultural exports that hurt the rural poor in Nigeria (Bevan et al. 1999).

Changes in horizontal inequalities (the gap between oil-rich regions and oil-poor regions) can be achieved through direct distribution (sharing oil money directly among citizens) and decentralization (distribution of oil revenue at sub-national level) of oil revenue. However, these methods are likely to fail in oil-rich developing countries due to the weak nature of their state institutions. Prudent measures that can accentuate the gap between these categories of regions are: first, giving oil companies incentives to employ local people and to buy products that are locally made as part of the deal regarding the offer of the operating license.

Second, adopting strategies that would discourage workers from migrating into the oil producing towns. A resource abundant mostly pulls poorly paid workers from other regions of the country, or from other countries. The number of available jobs for the local citizens is lessened by the migrants and this mostly result in social tension. For example, in Indonesia, tensions between locals and migrants around mining projects helped spark separatist movements (Ross 2006). Temporal migration limitation can help reduce these tensions that would increase the oil gains for local peoples.

Third, ensuring transparent practices for all revenues from oil production. This could help dismiss any false information to the local population concerning the amount and distribution of oil rents.

Fourth, encouraging mediation by non-governmental organizations (NGOs) between indigenous population and oil firms. Mostly, worry of differences exist between indigenous people, who have issues about the environmental, economic, and social repercussions of oil exploration, and a greater number of foreign companies, who doesn't do enough to address local problems and concerns. These differences can be resolved by NGOs: they can help implement local development activities that are financed with oil wealth; keep track of companies and government activities, and other actors; convene adversarial parties, making them more transparent and accountable (Ross 2001).

Furthermore, full centralization of oil money with regards to income distribution, with carefully constructed transfers to governments of sub-regions is the first-best option (Amad & Mottu 2003). Recognising that maintaining this option is often difficult in political view, their second-best recommendation is to allow sub-regional governments to impose relatively small, stable types of petroleum taxes such as production excise taxes while the national government impose taxes and royalties that capture the more volatile forms of revenue. Amad and Mottu (2003) again suggest any sub-national petroleum taxes be supported by more stable revenue sources. They say comparing this to revenue-sharing arrangements, this arrangement will help sustain accountability among sub-regional governments, make easier government's macroeconomic planning, and maintain stability in financing sub-regional governments for local services.

7.2.2 Fiscal social contract implementation

The root problems to social contract transparency are political and institutional (Karl 1997a). Overcoming these problems must begin with political and institutional agreements. First there should be a transparent fiscal social contract: a relationship that help prohibits the rent-seeking behaviour of all stakeholders, both domestic and international in the oil business. There should be the existence of a consolidated relationship agreement among countries and their citizens, firms, and international financial groups to be more transparent about the sharing of oil wealth so that a fair distribution can be realised. To succeed in this, three types of “stateness” deficits that include information, monitoring, and participation must be resolved (Karl 1997b). The information deficit could be addressed when oil governments’ exhibits vital strategic approach, for example, the types of profitable businesses that should be encouraged or how income distribution pattern are changing, and the existence of robust tax bureaucracy. This information gives citizens the opportunity to assess whether their personal interest in government’s expenditure processes are viable and effective. Also, the monitoring shortfall could be eradicated through the availability of revenue incentives to establish or adhere to regulations by producers of the economy; it is further improved by decentralizing power inside the executive that promotes meaningful checks and balances, and also subjects energy firms to massive checks, both in firms’ home country and country of operation. Lastly, the deficit of participation occurs as a result of weak linkages between the citizenry and the oil government. This situation could be averted through strong links and relationships among citizens and the state, which legitimise the ownership of public resources as the citizens of an oil state. When citizens are taxed regardless of the amount of the oil wealth, they develop a rentier culture to track governments of the resource management. The oil rents should be managed in a direction where rulers would still need to depend on the productivity of their subjects to raise revenues. This in effect would involve full participation of citizens in ensuring prudent usage of rents from the public resources.

7.3 Dealing with oil companies

Activities between the state and the multinational oil companies, ensuring their inclusion in the oil extraction and production activities are elaborated in the sentences below.

7.3.1 Auction process

Auctions allocate and price resources in settings of uncertainty (Klemperer 2002). Auctions are a formal and transparent approach that answers the question: who should win the item and at what value? (Ausubel & Cramton 1998). A core benefit of auction is its ability to release the block to bidders with the best ability to operate it. The competitive nature of auctions creates an environment where companies with the highest estimates of value for the block are likely to bid higher than the others (Klemperer 2002). Auctions are mostly preferred to informal processes of allocating oil exploitation and production right due to the fact that the latter which is also known as first-come-first-serve allocation, encourages corruption and favouritism and also lack transparency, which discourage competition which in turn leads to inefficiency of the exercise and revenues for the countries. Again, the latter encourage expropriation. Ausubel and Cramton (1998) assert that an administrative process, also known as “beauty contest” in which oil firms deliver plans for exploration and development following a formal process. This option may be of high flexible than auctions, but lacks transparency and is more prone to favouritism and corruption. In order to ensure sanity in the auction process, certain rules must be followed: first, the process should commence with the advertisement of the tender in public, and be open to all firms on a non-discriminatory manner. Second, issuing license to firms should follow certain complete procedures, including the qualification procedure of a bidder and the rules governing the auction. Third, the country should abide by the process. Finally, the process should permit for and support input from oil companies in a transparent setting that requires announcement of the content of meetings in public between the country and the oil companies (Ausubel & Cramton 1998). Bids and the participation of bidder are increased if concerns of a legitimate bidder and preferences are addressed.

7.3.2 Bidder preference

The two categories of bidder preference that influence auction design are known as: interdependence of valuations across bidders and the interdependence of valuation across blocks (Ausubel & Cramton 1998). Interdependence of valuations across bidders is grouped in three different preferences: First, the private value which means the value of each bidder is independent of the private information of the other bidders.

Each bidder has its own valuation of the anticipated worth of the variety of items on sale. Second, the common values are when items in packages have the same value to all bidders. But these values are not known. The value can be stated based on private information of individual bidders, as well as the information held by other bidders. A bidder's strong ability to estimate an item's value depends on how well it has information about other bidder's item valuations. Lastly, if interdependence values occur, then each bidder's package value depends on his private information as well as other bidders' private information (Klemperer 2002). This is a more general valuation and both private and common values can be stated as special cases of interdependence values. In most cases all oil rights settings are examples of a common values auction. A common value (the world oil price) is what firms use to set their values. However, the uncertainty concerning oil quantity and extraction cost is resolved by firms resorting to private value auctions to have other bidders' private information (Ausubel & Cramton 1998).

Interdependence of valuations across blocks: this is primarily concerned about the structure of package values. The first model of valuation is known as additive values: the package's value is the values of the individual blocks in a sum. Oil rights auctions mostly employ additive values as the best approximation (Klemperer 2002). However, occasionally subadditive or superadditive value is used. The Package's value is less than the total of the individual values with the subadditive values, and a package's value is greater than the sum of the individual values with the superadditive values (Ausubel & Cramton 1998).

7.3.3 Auction design

Oil rights auctions mostly have the following design options: bonus bid and royalties or production sharing (Klemperer 2002). The bonus bid is the deposit made in advance in auction for the exploration right and the block development in the license period. However, this kind of design is problematic in the light of expropriation risk for companies. The royalty is the government's share of the oil wealth. The shortfall of royalties is that, like a tax, it retards decisions on investment. A large royalty rate serves as a disincentive for the oil company. Production-sharing contracts (PSCs) involve specifying cost and profit sharing throughout exploration and development of the blocks (Klemperer 2002). Mostly, PSCs are suitable for developing oil-rich nations with little upfront

fees and high government shares when oil finds are successful. PSCs lessen oil firm risk and better deal with investment attractions through the specification of cost and profit sharing during exploration and development. It is most favourable to companies because it can enable companies gain back exploration and development cost before revenues shares for the country. Afualo and McMillan (1996) claim that bidding over the government's highest profit share is notable with PSCs. Thus, there are competitions among bidders on their eagerness to divide profits in the most favourable ways. This approach was recently deployed in Libya, lowers risk for oil firm without destructing development incentives, since the bid shares only apply for highly successful blocks (Johnston 2005). Government's contributions to the costs of development and operation further increase the development incentives.

7.4 Setting the oil revenue management law

Various dealings concerning the oil production and its revenue should be governed by certain rules and regulations to ensure prudent management. Below are some vital discussions to that effect.

7.4.1 Account establishment

An oil account is established for various purposes. It could be a tool for monitoring oil financial gains, a stabilization fund to absorb fluctuation of prices of oil, or a saving device to create a permanent fund to cater for the future of the citizens of a state (Sunley et al. 2002). Practically, a number of primary decisions must be adopted in establishing a successful oil account: first, should the account be a trust fund, a special account, another subaccount of government deposits held by the Central Bank, a separate account or accounts kept at the treasury? Second, should the account be kept at institutions abroad or home? Last, what are the requirements regarding custodian qualifications and the manner the custodian should be selected (Bell & Faria 2006:288). It is advisable for an oil fund to be kept separate from the normal government account and entrusted to the hands of a custodian institution. The funds are preferred to be held offshore and the holdings be established in international currencies. This preference is mostly applicable to oil-rich developing nations such as Ghana because: holding a domestic oil account would serve as an incentive to the "Dutch disease" syndrome (Sunley et al. 2002). Also majority of local banking systems lack the control and strength relevant to maintain sanity and security of an oil account, consid-

ering the potential magnitude of oil deposits. Furthermore, the choice of a local institution to manage and maintain the account has a higher tendency to be influenced politically. However, the latter is also possible with offshore accounts but with a lower probability.

7.4.2 Oversight and control

The mobilization, management and utilization of all oil-earned revenues should be subject to broad and detailed oversight and control (Bell 2000). Oversight and controls should require periodic and public reports by the group assigned with this task. Oversight and controls should also be carried out by a parliamentary commission including some opposition members, governmental bodies and some civil society groups (Bell & Faria 2006). For example, in Sao Tome and Principe, the oil revenue law enacted a new body that was independent, the petroleum oversight and control commission, made up of governmental, parliamentary and civil society members. The commission is mandated with oil revenues monitoring and management and assuring the revenue management law implementation, and has significantly been charged with investigative powers (Bell & Faria 2006).

Bell and Faria (2006) contend that periodic auditing of the oil account is a vital tool of accountability. There should be an accounting method specification in an oil revenue management law that the oil account should follow, and require all transaction of the oil account to undergo annual auditing by an independent world acclaimed accounting institution that uses accounting methods accepted worldwide, selected by open and public procurement. The law should also states that audits, any back-up papers, and special reports be presented to governmental agencies and made public (Bell 2000).

7.4.3 Transparency

The most important issues with any law governing oil revenues management are the transparency requirement and the establishment of policies that sustain such transparency. In general, all information pertaining to oil revenue should be declared publicly without any alteration. Oil-rich nations should join any international advocates of transparency such as Extractive Industries Transparency Initiative (EITI). For example, in a collaborative development zone controlled by both Nigeria and Sao Tome and Principe, their leaders signed a declaration of principles at Abuja, which requires indi-

vidual company data disclosed and of contracts by the governing authority and the companies (IMF 2005). Information should be made available through any convenient medium such as creation of information centre, the internet and daily news papers. All oil revenue management laws should include no-bribery and procurement compliance representations, public announcement obligations as well as statement conditioning the effectiveness of the agreement or contract on full adherence with applicable government contract laws (Bell & Faria 2006).

7.4.4 Law sustenance

An ultimate issue for an oil management law is how to institute practical and legal restraints that will prevent future governments from abolishing or evading the law while at the same moment ensuring flexibility to meet changing conditions (Bell 2000). For instance, some countries make it possible for the existence of special supermajority legislative agreement and requirements of referenda for changes in the law.

Another strategy to ensure sustenance of the law on oil rents management is to deploy a constitutional amendment tackling vital issues. A constitutional change would strongly improve the controls over the mobilization and oil revenues usage, and would restrain but not prevent any party's ability to unilaterally change the rules governing the oil account (Bell & Faria 2006). A change could reaffirm vital principles of the oil revenue management law. It might state that all petroleum resources and the revenues earned belong to the nation and must not be tempered and that all monies from such resources must be transferred to the oil account, that all monies from the oil account can be made available only for particular specified use (Bell 2000). Whatever form the oil fund may be structured, however, legislators and their supporting authorities must realise that without well established supporting institutions, the law may only be on paper. Eventually, huge patronage rather than good drafting is the ultimate significant sustaining instrument, however, a well drafted law may help heighten and build that support (Bell and Faria 2006). Again, Bell and Faria (2006) assert that there is a potential of a virtuous circle in which a successful and sustained law promotes stronger popular constituencies who in turn will act to advocate and maintain the law.

7.5 Countries experience with oil wealth management

Oil has been exploited in many developed and developing countries and its potential effects have differed among them. Specifically, most of the oil-rich developed nations

have performed well whilst most developing nations have turned oil fortune into an economic curse. Let consider the experiences of Norway which has used its oil revenue wisely to the benefit of its entire population as against Nigeria, a developing country, which has misused its vast resource wealth to the detriments of its citizens.

7.5.1 Economic volatility reduction

Before the oil discovery, Norway already had strong and effective institutions, reliable and trusted legal systems, and a high level of industrialization in place which helped made the managements of its oil revenue more profitable (Torvik 2008). Norway's petroleum fund has served as both stabilization and savings funds that have contributed to the build up of financial deposits during periods of high prices of oil and increasing economic activity. These reserves are drawn as a financial buffer against decrease in revenue, or in the long-run as oil production declines and social expenditure increases to make up for the non-oil budget deficit thus contributing to the overall fiscal balance of the economy. On the contrary, the Nigerian government is highly dependent on oil revenues; it derives 95 percent of its total revenue mobilisation from oil (IMF 2005). It has deviated from the traditional revenue mobilization pattern and as such revenues of government changes with respect to oil exports value. This tends to make the fiscal policy of government an overbearing influence on the economy.

7.5.2 Democratic prosperity

An effort has been made to immunize the oil fund in Norway from political interference by handling its management over to an independent central bank. In Norway, there exist little political differences and equality in society is valuable (Torvik 2008). The existence of transparency at the highest level in the processes of politics and bureaucracy has strengthened the general trust in the integrity of politicians as well as the professional skills of the civil service (Torvik 2008). Many Norwegians have no doubts in their minds about government's ability to manage effectively and honestly the oil wealth. Oppositely, in Nigeria, it is argued that the discovery of oil has impacted on its democratic system as politics are consistently shaped by access to revenues from oil by politicians. Subsequent political developments to this day have always been associated with oil revenue as politicians engage in all forms of corrupt practices such as rent-seeking to capture the oil rents for political power. This has impacted negatively on the oil revenue mobilization to the state. Moreover, poor industrialization has also contrib-

uted to a weak democracy in Nigeria since democracy is made strong by industrialization through creating an urban middle class, which in turn creates a stable platform for democratic institutions (IMF 2005).

7.5.3 Inequality and conflict reduction

When there is inequality in sharing, there is always dissatisfaction and eventually a conflict follows (Ross 2001). This was the situation in Nigeria. Oil has also contributed greatly to the recent conflicts in the Delta region. Majority of Nigeria's oil extraction occurs there and they suffer a significant magnitude of costs involved with the oil extraction, and believe they have not been compensated adequately. What also fuelled this conflict is the incidence of high levels of poverty. Literacy rates, access to health services, and access to safety water are exceptionally low and unemployment is exceptionally high (World Bank 2005). Norway's experience tells a different story. Even before the discovery of oil, Norway's political culture was emphasised economic equality (Torvik 2008). This served as an incentive for the creation of the Norwegian welfare state. In the fourteenth century, it was known that a regional system was established which guaranteed work for the rural Norwegian poor. It is quite evident that today, economic equality is viewed as a tradition ingrained with the historical political culture of Norway instead of a reaction against entrenched inequality. This already existing practice has impacted positively on the equal distribution of the nation's vast revenue from the oil wealth. A sense of obligation to assist the poor, old, and sick is deeply rooted within Norwegian political culture. This obligation was made possible by the oil wealth through financing social welfare programs for its population (Torvik 2008).

7.5.4 Transparency

By and large, lack of transparency in Africa attributed to weak political and institutional structures (Ross 2001). Nigeria, since it started pumping oil has been marred by massive corruption and other dubious practices that have derailed its economic transformation goal. While oil has contributed to government's earning at US\$ 400 billion since 1970, standards of living have not improved (Sala-i-Martin & Subramanian 2003). Transactions on oil export and import produce large amount of returns but the non-transparent practices involved encourage corruption. Mostly, little is known about the processes used to select winners of contracts or how much they are worth. The Nigerian press allege that officials often are bribed by the firms involved. Continuous mis-

management of the four state refineries in Nigeria has yielded only around half of their combined potential capacity (UNDP 2000). The consequences are that majority of refined petroleum used by its population are imported. However, Nigeria recently adopted the Extractive Industries Transparency Initiative (EITI) to put a stop to the high amount of oil revenue lost in the country both by locals and foreign partners. The initiative (NEITI) is woven around three basic tenets namely: the re-enactment of national ethics, law enforcement and institutional reforms. The NEITI was necessary because it encourages transparency in the payment and oil revenues receipt. This would provide reliable database to monitor government expenditure. It also enhances accountability at all three tiers of government as well as the executive and legislation organs of government. Lastly, Nigeria derives 95% of its revenue from the oil industry hence transparency is capable of creating access to finance and investment at both national and global levels. In Norway, the unprecedented growth of its pension fund to about US\$ 513 billion attests to the high level of transparency governing the management of the fund (Olsen 2008). Norway's finance ministry (2010) argues that the fund has been well established that its goals are in conformity to financial sustainability rather than any secretive political dealings in secret, and its score was 100% for governance, transparency and accountability in 2007 by the US based Peterson Institute for International Economies. The rules governing the management of the fund are simple: the central bank of Norway, which is made autonomous, on behalf of the ministry of finance maintains the fund. The finance ministry owns the fund on behalf of the Norwegian citizens. The ministry draft plans for the fund's investments strategy following advice from the central bank and discussion in parliament (Norway's finance ministry 2010).

7.6 Solution relevant to Ghana's state of the economy

Rapid growth of revenue from oil mostly occurs during the initial years of extraction. The mismanagement risk is however at its peak during these years (World Bank 2009). In the face of it, Ghana's current economic situation would be the best measure of what kind of prudent managerial principles to institute in governing the country's newly found resource wealth in order to curb the curse associated with resource finds. These key principles include: good governance and transparency, prudent macro-economic policies, and structural transformation.

7.6.1 Governance and transparency

The government of Ghana promulgated its commitment in early 2009 to publicly announce petroleum agreements (OILIS 2010). This announcement was made in time as many were worried about the transparent way to manage the oil revenue so that the country does not suffer the same way as it did in the mining industry where even though Ghana adopted the Extractive Industries Transparency Initiatives (EITI) it never complied. However, the chairman of the parliamentary select committee on energy raised a complaint at a recent oil forum about lack of access to petroleum agreement and contracts which raises so many questions about transparency in the oil industry (OILIS 2010).

First, Ghana should listen to the call of its civil society to make its compliance to the EITI mandatory as its current voluntary compliance leaves worst offenders escape scrutiny. Again, the country should strengthen already adopted freedom of information acts by enforcing transparency and accountability operations in these dealings: publicly making available all data concerning revenues from oil and what they are used for, and also publicly making available the identity of a bidder and documents of bidding. This exercise could be done by EITI. Moreover, the strengthening of the parliamentary oversight committee on energy, sustaining community oversight function, and increasing the capacity of agencies responsible for mobilizing revenue are all measures needed to kick out corruption in the oil sector. Ghana's institutional challenges are lessened by its strong democratic achievements. However, increased transparency and good governance, in turn should create an opportunity to establish a strong institutional response to the risk of political influence on the oil revenues. Ghana has once more been offered the opportunity by the oil find to strengthen its democratic ethos through managing the oil resource and associated revenue in a transparent way.

7.6.2 Macro-economic policy

As oil revenue has started pouring into Ghana, there are two vital macro-economic challenges that need critical attention (World Bank 2009). First, is dealing with the volatility nature of amount produced and price of oil, and its unpredictable nature. Second, is the nature and present unfolding of recurrent fiscal imbalance. The latter, if not properly dealt with, will tempt the government to rely on oil revenue to finance

public consumption instead of financing relevant investment such as public goods. Oil price volatility in the world market and therefore oil fund does not support sound budget implementation and in essence, impedes planning development of investment of a medium-term framework (World Bank 2009). Practically, addressing the price volatility issue involves manipulating the oil revenue share to be deposited into the national budget, after which the rest are invested abroad (in the interest of separating these investments from Ghana's economic cycle). Foremost, there is the need to establish a stabilisation mechanism which is made up of establishing a reference price, usually, of the same size as the forecast price in the long-run, and depositing only the oil production rent estimated at the reference price to the state budget and keeping the rest in a stabilization fund if the actual price is higher, or make redrawals from this fund if the true price is lower (World Bank 2009). The second solution is made up of establishing a permanent income fund or heritage fund, with this fund, only the interest of the rent from the accrued assets is transferred to the state budget. Global prices couple with real interest rates will be the key determinants of the earned money which can be utilized each year, even after the exhaustion of the oil reserves.

Ratings agency, Standard & Poor's rated Ghana B/B, and said even though Ghana continues to benefit from strong GDP growth, strengthening oil production volumes, and political stability, the country continues to suffer from weak fiscal management highlighted by a widening of the fiscal deficit in 2010 and increased supplier arrears (Joy Business News 2011). This threatens the country's ability to rely on revenue from oil to finance needed projects. In recent years, its recurrent balance dropped by a figure above 6 percent of GDP (initial 8.3% GDP to 2.1% GDP) in many cases due to increased public sector wages and energy subsidies (IMF 2009). To deal with this problem, first, the single spine payroll reforms, and energy cost recovery mechanisms should be implemented. According to the International monetary Fund (IMF), Ghana has a recurrent balance of 2 percent with a privilege historical 5 percent of GDP borrowing, and therefore can only fund projects up to 7 percent of GDP, extremely less than the 10-11 percent required to resolve its infrastructure problem. The country may be tempted considering its fiscal imbalances as well as smoothing needs, seeking loan on conditional terms against oil money in the future to postpone fiscal consolidation would increase risk of debt accumulation (IMF 2009). IMF and World Bank (2009) argue that even in the presence of oil wealth, inability to lessen the large primary deficit

and maintain this consolidation over the future would result in a much less favourable debt sustainability outlook.

7.6.3 Structural transformation

Macro and micro economic indicators in Ghana suggest that commercial farming will suffer huge setback due to the rapid flow of oil money into the economy. Currently more than 70 percent of the rural poor dwell in rural communities where agriculture is prevalent. Agriculture will continue to be a major contributor to economic growth and also poverty alleviation goal even in the presence of rapid migration of rural folks to the urban communities as a result of the oil boom (World Bank 2009). No doubt reasons exist to accept the fact that productivity growth in agriculture could be a major catalyst of industrialization and economic growth starter in Ghana. First, because agricultural outputs serve as raw materials for the industry, directly for some industries (e.g., food cannery, textiles) and indirectly considering the effect it has on real wages. Second, because the productivity growth in agriculture has the potential to break the subsistence farming continuous cycle where all the agriculture outputs are utilized within the harvest period. In effect, productivity growth free workers or time for other activities, improves savings and investments, reduces farmers' setbacks, and thus strengthens their ability engage in productive risks (World Bank 2009). It also increases industrial products demand, which is vital in the existence of fixed cost in industry. This, in turn, will serve as an incentive for industrialization. The agricultural productivity growth and diversification of the economy away from oil production could not take place without investing massively in public goods which is underprovided in Ghana (World Bank 2009). The Government through its investments programme must pay greater attention on providing a quality and adequate road network, portable drinking water, affordable health care, quality education, energy efficiency and an excellent telecommunication network across the country. For it is with these transformations that the economy of Ghana can expand and develop for the greater benefit of all its citizens.

The environment should also be a major concern and priority to the government of Ghana. Certainly, as oil production starts, there would be some environmental challenges. There is the possibility of oil spill on the countries beaches and in the sea-waters since Ghana's oil reserve is offshore. This would destroy the country's aquatic

eco-system and fisheries which would mean a major setback for Ghana's fishing industry. To ensure protection for Ghana's environment, the government should inculcate environmental issues in the yet to be drawn petroleum bill demanding that companies accept full responsibility should any spill occur to the environment during their operation. The law should also demand a reliable plan from the oil companies on any preventive measures and how they will tackle any spillage should it occur to the environment.

8 Conclusion

Ghana's oil in commercial quantity started flowing at the last quarter of the year 2010. Already, several uninformed discussions have occurred following the find, which have done well only in raising Ghanaian citizen's expectations about the oil find. Each time oil was discovered in any part of Africa, there were always hues and cries about how the resource was going to be managed. Usually, it turns out to be a curse as a result of poor and inefficient management by the custodians of this resource. It is in the wake of this that Ghanaians have been too cautious about the management of their newly found oil resource. The issue of whether an oil discovery would be a blessing or a curse to Ghana is primarily dependent on the managerial principles and the model that would be deployed to manage the oil production and the revenues associated with it. Based on the discussions above, it is arguable that prudent macroeconomic policy, dealing with multinational corporations, revenue management laws, equity and fairness, transparency and environmental concerns are paramount to realising the benefits that come from oil discovery.

Oil revenues need not be a curse. When managed properly, they can help Ghana improve upon its economy, especially by providing the public financing for critical investments in key public goods rather than financing consumption. The provision of public goods such as basic infrastructure is relevant since they are underprovided in Ghana. With this type of investment, the fears of the Dutch Disease are likely to be exaggerated. The absence of the Dutch disease syndrome would mean that every sector of the economy would perform well and this would overshadow the fear of the vertical inequality that could occur. Given the changing nature of oil prices in the world couple with its depletion character, there should be a considerable manipulation of oil earning

share to be deposited in Ghana's national budget and invest the rest overseas to spread the benefits of the oil earnings across generations. Ghana's weak fiscal imbalance could be solved through prudent reforms in the public payment structure, and the implementation of utility usage cost recovery mechanisms.

Due to the capital intensiveness and the technological expertise requirements in this industry, it is inevitable to rely upon multinational companies in the exploitation and production of the oil resource. However, without managing their involvements properly could cause inconvenience to the Ghanaian economy. It is critical for Ghana to engage professionals to negotiate oil contracts with multinational oil companies so that contracts will be accepted and honoured over time by future government. Mostly, auctions are favourable compared to informal processes that are characterised by favouritism, fraud, lack of competition, and non-transparent factors. Furthermore, production sharing contracts in auction design takes into consideration the interest of oil companies by reducing their risk whilst increasing host country's profit share from the oil rents.

Laws are essential to the governance of oil rents in any oil-rich nation. Ghana already enjoys the rule of law, but it is imperative, where necessary to amend the laws and create new ones as oil money has started flowing to ensure prosperity in its management. It is preferable by law to establish an oil account to be held offshore as against domestic holdings. Domestic holdings could cause the Dutch disease syndrome and encourage custodian favouritism. Domestic banking also lacks controls and capacities to manage the large amount of oil rents. Oversight and control by law should be carried out by a specific group, usually the parliamentary commission with members of diverse political affiliates and entrusted with significant investigative powers to effectively carry out their duty without fear of intimidation and interference. Transparency is essential at every stage of oil management: macro-economic policies, environmental dealings, dealing with oil firms, governance and the provision of oil management laws. It must be noted that oil wealth alone do not guarantee proper management. They are managed by institutions whose activities must be operated transparently, so as to avoid mismanagement, misapplication, diversions and inadequate disclosures (Adam 2010). Ghana has already adopted the EITI, but its voluntary compliance leaves the country abandoning the purpose of the EITI. It is therefore necessary by law to make its compliance compulsory. The environment is also a matter of great concern during

the exploitation and production processes. Any oil spill could cause serious damages to the water bodies destroying the livelihood of the fishing community in the catchment area. The law is an essential tool that could be used to demand plans from oil firms on preventive measures that have been adopted to ensure spill-free operation; how they would tackle it should it occur, and the willingness to accept responsibilities. Importantly, the law should be characterised by legal barriers to inhibit subsequent governments from abandoning it while also exercising flexibility to contain changing situations.

As earlier stressed, Oil by itself does not produce economic growth. It is the managerial practices that would determine its impact on the economy. The president of the Republic of Ghana John Atta Mills at a recent public forum said the government will prevent the pitfalls other African producers have fallen into, stressing that "we must set an example to all and sundry that when natural assets are utilized, they bring nothing but benefit" (McLure 2010). If the president's words would translate into reality, all would depend on the adoption of the prudent managerial principles discussed above. With these principles, certainly, Ghana should not be seen after many years to come as a resource trap victim.

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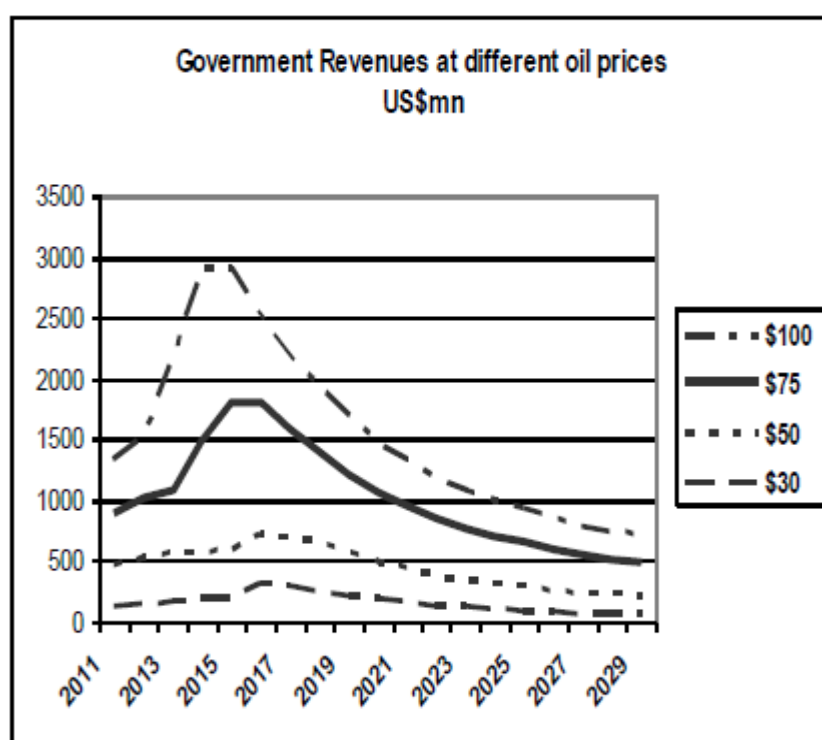
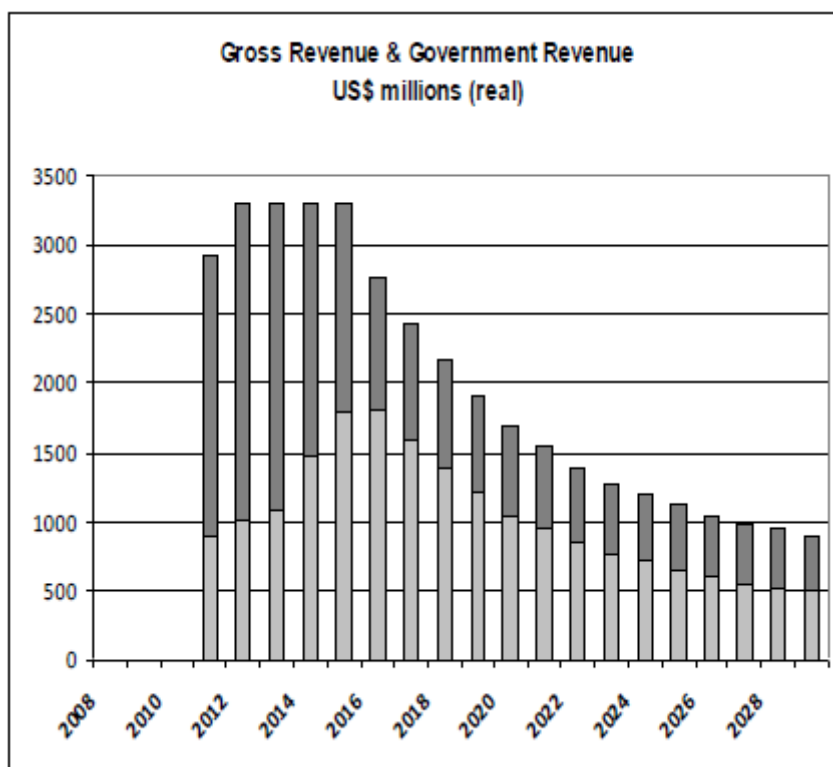
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Peaking in 2011-16, Oil Extraction could add US\$1 Billion to Ghana's Budget



Source: World Bank (2009)

Sao Tome's Oil Fund

The framework makes provisions for a number of additional windows of opportunity to increase transparency and accountability by placing the responsibility on the company to disclose information in an accessible form to a public information office and, if they fail to do so, they risk losing their contract. It also mandates, and gives wide ranging power to, an inclusive oversight mechanism which includes a broad base of eleven stakeholders, only one of which is appointed by the president (ministers, auditor general, three civil society representatives etc.). The national assembly is also required to hold yearly public hearings on the performance of the fund (World Bank 2009).

Norway's Oil Fund

The fund is designed to manage accumulated budgetary surpluses and does not have specific rules for the accumulation or withdrawal of resources, making its operation flexible. Specifically, the budget transfers to the State Pension Fund (SPF) net oil revenues. In turn, the SPF finances the budget's non-oil deficit through a reverse transfer (provided there are enough funds in the SPF). Thus, the SPF effectively finances the overall budget balance. An overall budget surplus would be transferred to the fund; a budget deficit would be financed by the fund. The accumulation of assets in the SPF, which includes return on the fund's capital, thus represents government net financial savings. The amount actually saved depends on oil prices and the fiscal stance as embodied in the non-oil fiscal deficit. SPF assets are under the control of the ministry of finance and are managed by the central bank, with a high level of transparency and accountability. A key reason for establishing the SPF was the desire to make more transparent the intertemporal policy choices available to the country, related to the expected secular decline in oil and gas output and increase in pension outlays. In this context, the fund has helped to provide a long-term framework for the annual process of setting the non-oil budget deficit. The SPF is effectively a government account rather than a fund. Its features ensure integrity into a unitary fiscal system and address fungibility issue. The fund does not attempt to deal directly with the problems posed to the budget by the volatility of oil prices. The latter are addressed in the context of the standard budgetary process. The lack of restriction posed by the SPF has worked well, since Norway has typically followed sound fiscal and macroeconomic policies. Moreover, for a country like Norway, with a highly diversified production structure and a broad fiscal revenue base, oil revenue has typically accounted for less than 15 percent of government revenue, therefore, the challenge posed by oil price volatility to fiscal management is significantly less than for other oil producing nations (Humphreys 2009).